

Application No.: 09/988853

SMQ-082CN1/P6396CNT

REMARKS

Upon entry of this paper, claims 1-51 are pending. There are no amendments to the claims.

Claim Rejections Pursuant to 35 U.S.C. §102(e)

The Examiner rejected claims 1-4, 6-10, 12-16, 18, 20-23, 25-29, 31-35, 37-41, 43-46, and 48-50 pursuant to 35 U.S.C. 102(e) as being anticipated by Sicola et. al (U.S. Patent No. 6,629,264, hereafter "Sicola"). For the reasons set forth below, the Applicants respectfully traverse these rejections.

Independent claim 1 includes the step of grouping two data structures held by a storage device locally accessing a first electronic device. The Examiner suggests that Sicola discloses this step of grouping at column 20, lines 38-55. The cited section discusses the implementation of "association sets". Sicola defines an association set as a group of logical units (a set of one or more remote copy sets) on a local or remote pair of array controllers at column 19, line 58-60. The term "remote copy set" is defined and discussed in Figure 4 and the discussion thereon. A "remote copy set" comprises a pair of same-sized volumes, one on the local array, and one on the remote array (see col. 8, lines 55-57)[emphasis added]. In other words, the information being grouped in the association set requires the inclusion of information from the remote location. An example of this may be seen in logical units 410 and 410' in Figure 4 in Sicola. Therefore, an association set consists of pairs of volumes on different sites (initiator site and target site), whereas in the claimed invention, the grouping of structures consists of structures on the same site. Hence, Sicola fails to anticipate claim 1.

Similarly, in independent claim 8, the claimed method includes the step of associating a first data structure and a second data structure held by a locally accessible storage device with the logical association defining a group. Sicola does not teach such a step.

Independent claim 13 also teaches the step of grouping two structures at the same site and therefore Sicola does not anticipate claim 13.

Application No.: 09/988853

SMQ-082CN1/P6396CNT

Claims 2-4, 6-7, 9-10, 14-16, 18 and 20 are dependent upon independent claims 1, 8 or 13 and accordingly include all of their limitations including the grouping of the local structures.

Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejections of claim 1, 8, and 13 and the corresponding dependent claims.

Claims 21-23, 25-29, 31 and 32 are directed to a method that is practiced in a storage network to create a replica of selected data. In the storage network, performance of the method instructs a first data replication facility at a first electronic device in the storage network to track changes to one or more storage locations of a first storage medium corresponding to the selected data. Further performance of the method instructs the first data replication facility to generate a replica of the selected data based on the tracked changes to the one or more locations of the first storage medium. The replica is placed in a data structure and the replica is forwarded in accordance with a communication protocol from the data structure to a second data replication facility. Claims 33-35, 37-41, 43 and 44 are readable medium claims that parallel Claims 21-23, 25-29, 31 and 32.

The Examiner cites Column 12, lines 17-34 of Sicola as anticipating these claims. The cited passage discloses an asynchronous operation that includes a peer-to-peer remote copy software manager that "micro-logs" write transfer LBN extent in a controller's non-volatile write-back cache "micro-log". Sicola carries out this micro-logging in all situations in the event the initiator controller crashes after status is returned to the host but before the remote copy completes. That is, Sicola micro-logs each asynchronous transfer. However, the micro-log information is used only when the controller crashes with outstanding remote copies (or with outstanding logging unit writes). The micro-log contains information to reissue the remote copies by another controller. *See*, column 12, lines 27-43 of Sicola. The Examiner asserts that this passage from Sicola discloses the method performed in a storage network to create a replica of selected data in the storage network recited in Claim 21. The cited passage from column 12 of Sicola indicates that Sicola logs every write so that in the event of error and only in the event of an error the system of Sicola reads the micro-log in order to complete a remote copy operation.

Application No.: 09/988853

SMQ-082CN1/P6396CNT

In contrast to the cited passage of Sicola, Claim 21 recites a step of instructing the first data replication facility to generate a replica of the selected data based on the tracked changes to the one or more locations of the first storage medium. Sicola does not disclose this step. Sicola does not rely on the micro-log to generate a replica of selected data based on tracked changes to one or more locations of the storage medium. Rather, Sicola utilizes all of the logged data in the event of the failure of the remote asynchronous copy operation. Hence, Sicola does not anticipate Claims 21, 25-29, 31-35, 37-41, 43 and 44. The specifics of Applicants claimed replica element is based on the tracked changes, an aspect missing from the wholesale use of all of the logged data in Sicola. Accordingly, Applicants' respectfully request the Examiner to reconsider and withdraw the rejection of Claims 21, 25-29, 31-35, 37-41, 43 and 44 under 35 U.S.C. § 102(e).

Claim Rejections Pursuant to 35 U.S.C. §103(a)

The Examiner rejected claims 5, 11, 17, 19, 30, and 42 pursuant to 35 U. S. C. 103(a) as being unpatentable over Sicola et. al (U.S. patent No. 6,629,264 B1) in view of Wahl et al. (U.S. patent No. 6,324,654 B1).

Claims 5, 11, and 42 are dependent upon independent claim 1, 8, and 33 respectively. As set forth above in the discussion of independent claims 1, 8, and 33, Sicola does not disclose the limitation of grouping data volumes in one storage device, and therefore does not disclose claims 1, 8, or 33. Similarly claims 17 and 19 are dependent upon independent claim 13 which includes the grouping limitation previously discussed that Sicola does not disclose. Claim 30 is dependent upon independent claim 21 which includes the limitation of making a replica of the selected data based on the tracked changes that Sicola also does not disclose. Wahl et al also lacks these limitations. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejections for claims 5, 11, 17, 19, 30, and 42.

The Examiner rejected claims 24, 36, 47 and 51 pursuant to 35 U. S. C. 103(a) as being unpatentable over Sicola et. al in view of Gagne et al. (U.S. patent No. 6,209,002 B1). Gagne et al was cited by the Examiner as teaching a data storage facility that mirrors data onto at least three different remote sites. Gagne et al however does not teach or suggest the missing

Aug-30-04 15:13

From:LAHIVE & COCKFIELD, LLP

8177424214

T-442 P.08/08 F-719

Application No.: 09/988853

SMQ-082CN1/P6396CNT

limitations in the independent claims 21, 33 and 45 upon which claims 26, 36, 47 and 51 are dependent. Since the combination of references fails to teach or suggest all of the claimed elements of claims 24, 36, 47 and 51, Applicants request the rejections be withdrawn.

Application No.: 09/988853

SMQ-082CN1/P6396CNT

CONCLUSION

In view of the above amendment, Applicants believes the pending application is in condition for allowance.

Applicant believes no fee is due with this statement. However, if a fee is due, please charge our Deposit Account No. 12-0080, under Order No. SMQ-082CN1 from which the undersigned is authorized to draw.

Dated: August 30, 2004

Respectfully submitted,

By John S. Curran
John S. Curran
Registration No.: 50, 445
LAHIVE & COCKFIELD, LLP
28 State Street
Boston, Massachusetts 02109
(617) 227-7400
(617) 742-4214 (Fax)
Attorney/Agent For Applicant